# HIGHLIGHTS

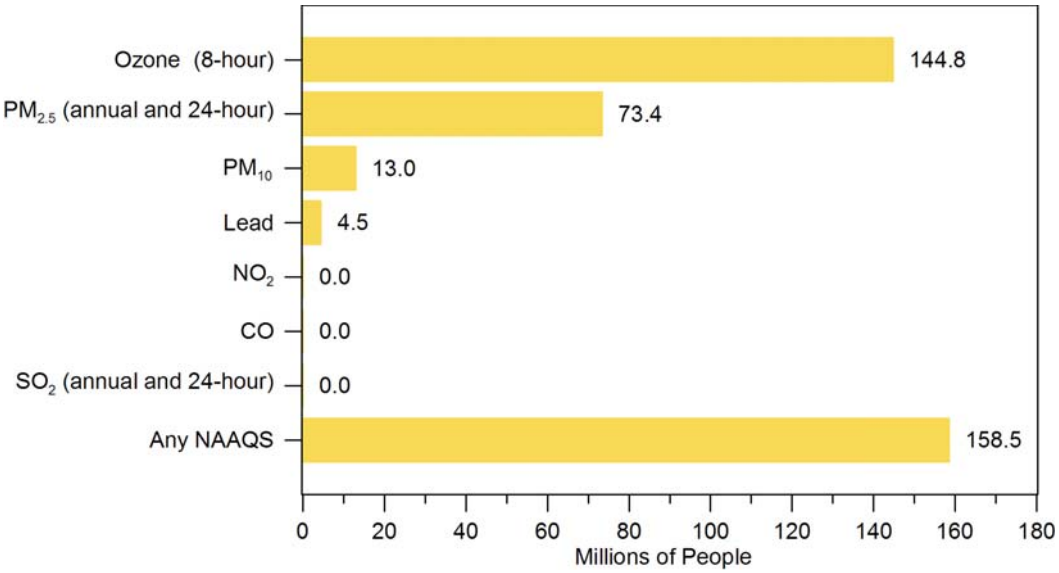
This summary report highlights EPA's most recent evaluation of the status and trends in our nation's air quality.

## LEVELS OF SIX COMMON POLLUTANTS CONTINUE TO DECLINE

- Cleaner cars, industries, and consumer products have contributed to cleaner air for much of the U.S.
- Since 1990, nationwide air quality for six air pollutants for which there are national standards has improved significantly. These air pollutants are ground-level ozone ($O_3$), particle pollution ($PM_{2.5}$ and $PM_{10}$), lead (Pb), nitrogen dioxide ($NO_2$), carbon monoxide (CO), and sulfur dioxide ($SO_2$). Nationally, air pollution was lower in 2007 than 1990 for:
  - 8-hour ozone, by 9 percent
  - annual $PM_{2.5}$ (since 2000), by 11 percent
  - $PM_{10}$, by 28 percent
  - Lead, by 80 percent
  - $NO_2$, by 35 percent
  - 8-hour CO, by 67 percent
  - $SO_2$, by 54 percent
- Despite clean air progress, in 2007, 158.5 million people lived in counties that exceeded any national ambient air quality standard (NAAQS). Ground-level ozone and particle pollution still present challenges in many areas of the country.
- Though $PM_{2.5}$ concentrations were higher in 2007 than in 2006, partly due to weather conditions, annual $PM_{2.5}$ concentrations were nine percent lower in 2007 than in 2001.
- 8-hour ozone concentrations were five percent lower in 2007 than in 2001. Ozone levels did not improve in much of the East until 2002, after which there was a significant decline. This decline is largely due to reductions in oxides of nitrogen ($NO_x$) emissions required by EPA's rule to reduce ozone in the East, the $NO_x$ SIP Call. EPA tracks progress toward meeting these reductions through its $NO_x$ Budget Trading Program.

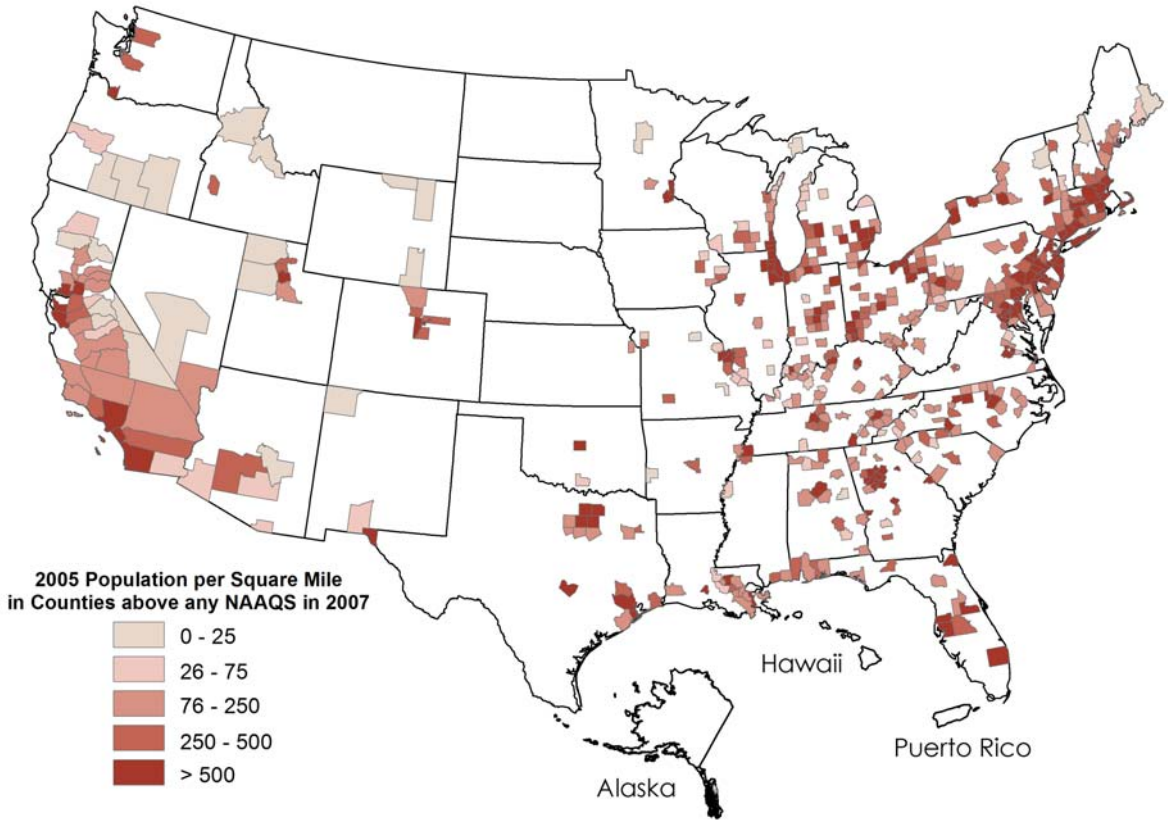
## LEVELS OF MANY TOXIC AIR POLLUTANTS HAVE DECLINED

- In 2007, 27 National Air Toxics Trends Stations (NATTS) were fully operational, providing a consistent long-term national network operated by state and local agencies with coordination provided by EPA.




*Number of people living in counties with air quality concentrations above the level of the primary (health-based) National Ambient Air Quality Standards (NAAQS) in 2007.*

Note: In 2008, EPA strengthened the national standard for 8-hour ozone to 0.075 ppm and the national standard for lead to 0.15 μg/m³. This figure includes people living in counties that monitored ozone and lead concentrations above the new levels. $PM_{2.5}$ are particles less than or equal to 2.5 micrometers (μm) in diameter. $PM_{10}$ are particles less than or equal to 10 μm in diameter.




*Population density (2005 population per square mile) in counties with air quality concentrations above the level of any of the primary NAAQS in 2007.*

Note: This figure includes counties that monitored ozone and lead concentrations above the new levels set in 2008.

- Toxic hydrocarbons such as benzene, 1,3-butadiene, styrene, xylenes, and toluene decreased by 5 percent or more per year between 2000 and 2005 at more than half of ambient monitoring sites. Other key contributors to cancer risk, such as carbon tetrachloride, tetrachloroethylene, and 1,4-dichlorobenzene, declined at most sites.
- Control programs for mobile sources and facilities such as chemical plants, dry cleaners, coke ovens, and incinerators are primarily responsible for reductions in toxic air pollutant emissions between 2000 and 2005. These emissions reductions have contributed to reductions in cancer risk as well as reductions in the hydrocarbon contribution to ozone concentrations.

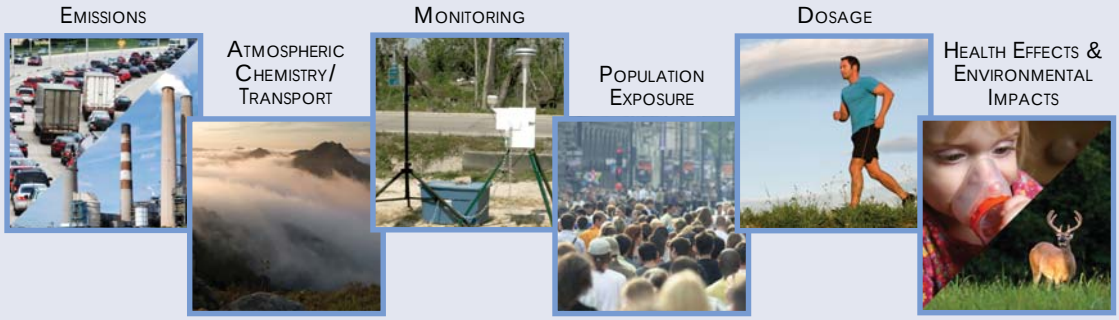
## ACID RAIN AND HAZE ARE DECLINING

- EPA's $NO_x$ SIP Call and Acid Rain Program have contributed to significant improvements in air quality and environmental health. The required reductions in sulfur dioxide and oxides of nitrogen have led to significant decreases in atmospheric deposition, contributing to improved water quality in lakes and streams. For example, between the 1989-1991 and 2005-2007 time periods, wet sulfate deposition and wet nitrate deposition decreased more than 30 percent in parts of the East.
- Between 1996 and 2006, visibility in scenic areas has improved throughout the country. Five areas—Mt. Rainier National Park, Wash.; Great Smoky Mountains National Park, Tenn.; Great Gulf Wilderness, N.H.; Canyonlands National Park, Utah; and Snoqualmie Pass, Wash.—show notable improvement on days with the worst visibility.

## CLIMATE CHANGE AND INTERNATIONAL TRANSPORT: IMPROVING OUR UNDERSTANDING

- The U.N. Intergovernmental Panel on Climate Change concluded climate change is evident from observations of increases in global average air and ocean temperatures, widespread melting of snow and ice, and rising global average sea level.
- Research is under way to examine and improve our understanding of the links between air quality and climate: how a warming climate could affect air quality and how air quality could affect climate.
- Researchers also are improving our understanding about how pollution moves between countries and continents.

## Sources-to-Effects Continuum




Because air pollution harms human health and damages the environment, EPA tracks pollutant emissions. Air pollutants are emitted from a variety of sources including stationary fuel combustion, industrial processes, highway vehicles, and non-road sources. These pollutants react in and are transported through the atmosphere. EPA, other federal agencies, and state, local, and tribal agencies monitor air quality at locations throughout the U.S. Data collected through ambient monitoring are used in models to estimate population exposure. Personal health monitoring is conducted via special studies to better understand actual dosage of pollutants. EPA uses monitoring data, population exposure estimates, and personal dosage data to better understand health effects and environmental impacts of air pollutants.

## MORE IMPROVEMENTS ANTICIPATED

- EPA expects air quality to continue to improve as recent regulations are fully implemented and states work to meet national standards. Among these regulations are: the Locomotive Engines and Marine Compression - Ignition Engines Rule, the Tier II Vehicle and Gasoline Sulfur Rule, the Heavy-Duty Highway Diesel Rule, the Clean Air Non-road Diesel Rule, and the Mobile Source Air Toxics Rule.